REMARKS

Status of the claims:

With the above amendments, claims 1, 4, 5, and 7 have been amended, claim 2 has been canceled, and claims 10-12 have been withdrawn from a prior restriction requirement. Claims 1 and 3-12 are pending with claims 1 and 3-9 ready for further action on the merits. No new matter has been added by way of the above amendments. Claim 1 has been amended by incorporating the subject matter of claim 2. Claims 4 and 5 have been amended by changing their dependency to reflect the cancellation of claim 2. Claim 7 has been amended simply to make it clearer. This is a non-narrowing amendment. Reconsideration is respectfully requested in light of the following remarks.

Double Patenting Rejection

Claims 1-9 have been rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of Tanaka '253 (US Patent No. 6,239,253).

Applicants traverse.

First of all, Applicants have amended claim 1 by the incorporation of the subject matter of claim 2. Thus, the claimed invention relates to a deproteinized natural rubber

latex, wherein the coagulation of a rubber component does not occur when the concentration of calcium ions (Ca^{2+}) is 0.01 mol/L or less and coagulation of the rubber component occurs when the concentration of (Ca^{2+}) is 0.1 mol/L or more.

The treatment for decomposition of a protein is conducted by adding a protease and two or more surfactants having different coagulation properties to calcium ions to a natural rubber latex as described in instant claim 1. The claimed deproteinized natural rubber latex is different in that it is superior in balance between the film forming properties by means of the anode coagulation method and thus, the dispersion stability of a latex. Namely, the obtained latex has good film forming properties by means of the anode coagulation method and is less likely to cause uneven thickness of the film and liquid dripping even when a mold is dipped repeatedly in a latex on formation or a rubber film. These advantages can be seen by comparing the results from the Examples relative to the Comparative Examples in the present specification.

Tanaka '253 (US Patent No. 6,239,253) corresponds to Japanese Published Unexamined Patent (Kokai Tokkyo Koho Hei) No. 6-56902 that is referred to in BACKGROUND OF THE INVENTION of the present specification (please see line 2 on page 2 to line 1 on page 3). As explained in the written description, Tanaka '253 discloses a method of removing a protein and a

decomposition product thereof through a series of steps of adding protease and a surfactant to a natural rubber latex, maturing the natural rubber latex, thereby decomposing a protein in the latex, and subjecting the latex to centrifugation.

However, Tanaka '253 is silent about adding two or more surfactants having different coagulation properties with respect to calcium ions (Ca^{2+}) to a natural rubber latex and maturing the natural rubber latex with dispersion level as specified in instant claim 1. Tanaka '253 fails to disclose the advantageous properties that are obtained by adding two or more surfactants having different coagulation properties with respect to Ca^{2+} ions. Accordingly, for these reasons, Tanaka '253 cannot render obvious the instant invention. Withdrawal of the rejection is warranted and respectfully requested.

Rejections under 35 USC §112, first paragraph

Claim 1 has been rejected under 35 USC 112, first paragraph as allegedly lacking enablement for the reasons stated at pages 3-4 of the Office Action. Applicants have amended claim 1 to incorporate the subject matter of claim 2. Applicants note that the Examiner did not reject claim 2 under 35 USC §112, first paragraph. Thus, Applicants believe that the rejection has been obviated. Moreover, the incorporation of claim 2 into claim 1 discloses a treatment for decomposition, which allows one of

skill in the art to make and use the claimed invention in claim 1 without undue experimentation. Withdrawal of the rejection is warranted and respectfully requested.

Rejections under 35 USC 103(a)

Claims 1-9 have been rejected under 35 USC 103(a) as being unpatentable over Tanaka '253 or Tanaka '567 (US Patent No. 5,910,567) or Tanaka '212 (US Patent No. 5,610,212).

Applicants traverse.

Present Invention

The present invention, as recited in claim 1, relates to deproteinized natural rubber latex, which is obtained by subjecting a natural rubber latex to a treatment for decomposition and removal of a protein. The treatment for decomposition of a protein is conducted by adding a protease and two or more surfactants having different coagulation properties to calcium ions (Ca^{2+}) to a natural rubber latex and maturing the natural rubber latex. The two or more surfactants are stably dispersed when the concentration of Ca^{2+} in an aqueous solution at 25°C containing the surfactants is 0.1 mol/L or less, and are coagulated when the concentration of Ca^{2+} in the aqueous solution is 1.0 mol/L or more.

Disclosure of Tanaka '253

Tanaka '253 discloses a deproteinized natural rubber substantially free from any protein and a process for producing the same, which comprises treating a latex with a protease and a specific surfactant or a combination of specific surfactants and separating rubber particles. A method for elevating the green strength of a natural rubber and a method for lowering the green strength of a natural rubber are also disclosed in Tanaka '253. Furthermore, a means for preventing allergy induced by natural rubber is also disclosed in Tanaka '253.

Disclosure of Tanaka '567

Tanaka '567 discloses a method for producing a formed product of deproteinized natural rubber latex capable of reducing a content of an allergen in a natural rubber latex material to a level sufficient to keep the latex from being harmful to the human body without decreasing yields of the product and deteriorating formability of the latex. In the method, cleaning removal of a non-rubber content is carried out after each of protein decomposition, prevulcanization and forming. An aqueous alkali solution, ammonia, water containing free chlorine in an amount of 0.005 to 0.02% by weight or alcohol-water mixed liquid containing alcohol in an amount of 5 to 80% by weight is used as the cleaning liquid for the cleaning

removal. The method is said to be suitably applied to production of a natural rubber product such as a rubber glove, a condom, a catheter, a foam rubber material and the like.

Disclosure of Tanaka '212

Tanaka '212 discloses a means for stabilizing a deproteinized natural rubber latex, comprising adding a stabilizer selected from the group consisting of (a) an anionic surfactant, (b) an amphoteric surfactant, (c) a nonionic surfactant, (d) a nonionic or amphoteric oligomer or polymer, and (e) an anionic oligomer or polymer. By adding the stabilizer, the mechanical stability of a deproteinized natural rubber latex is said to be markedly improved.

Removal of the Rejection over Tanaka '253 or Tanaka '567 or Tanaka '212

As was pointed out above, the claimed invention relates to a deproteinized natural rubber latex, wherein the coagulation of a rubber component does not occur when the concentration of calcium ions (Ca^{2+}) is 0.01 mol/L or less and coagulation of the rubber component occurs when the concentration of (Ca^{2+}) is 0.1 mol/L or more.

The treatment for decomposition of a protein is conducted by adding a protease and two or more surfactants having different

coagulation properties to calcium ions to a natural rubber latex as described in instant claim 1.

Tanaka '253 (US Patent No. 6,239,253) corresponds to Japanese Published Unexamined Patent (Kokai Tokkyo Koho Hei) No. 6-56902 that is referred to in BACKGROUND OF THE INVENTION of the present specification (please see line 2 on page 2 to line 1 on page 3). As explained in the written description, Tanaka '253 discloses a method of removing a protein and a decomposition product thereof through a series of steps of adding protease and a surfactant to a natural rubber latex, maturing the natural rubber latex, thereby decomposing a protein in the latex, and subjecting the latex to centrifugation.

However, as mentioned above, Tanaka '253 is silent about adding two or more surfactants having different coagulation properties with respect to calcium ions (Ca^{2+}) to a natural rubber latex and maturing the natural rubber latex with dispersion level as specified in instant claim 1. Accordingly, for these reasons, Tanaka '253 cannot render *prima facie* obvious the instant invention. Three criteria must be met to make out a *prima facie* case of obviousness.

1) There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.

2) There must be a reasonable expectation of success.

3) The prior art reference (or references when combined) must teach or suggest all the claim limitations.

See MPEP §2142 and *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991). In particular, the Examiner has failed to meet the third element to make a *prima facie* obviousness rejection. Tanaka '253 fails to disclose or suggest adding two or more surfactants having different coagulation properties with respect to calcium ions (Ca^{2+}) to a natural rubber latex and maturing the natural rubber latex with dispersion level. For this reason alone, the rejection is inapposite. Withdrawal of the rejection is warranted and respectfully requested.

Even if a proper *prima facie* obviousness rejection were made over Tanaka '253 (which Applicants do not concede), the instant invention possesses unexpectedly superior properties over the disclosure of Tanaka '253. As was discussed above, the claimed deproteinized natural rubber latex is superior in balance between the film forming properties by means of the anode coagulation method and the dispersion stability of a latex. Namely, the obtained latex has good film forming properties by means of the anode coagulation method and is less likely to cause uneven thickness of the film and liquid dripping even when a mold is dipped repeatedly in a latex on formation or a rubber film. These advantages can be seen by comparing the results

from the Examples relative to the Comparative Examples of the present specification. Thus, for this reason also, the rejection is inapposite. Withdrawal of the rejection is warranted and respectfully requested.

Tanaka '567 also cannot render *prima facie* obvious the instant invention. Tanaka '567 discloses that the surfactant may be selected from the group from the group of (a) an anionic surfactant, (b) a nonionic surfactant, (c) an amphoteric surfactant and any combination of the surfactants (a) to (C). However, Tanaka '567 also is silent about adding two or more surfactants having different coagulation properties with respect to calcium ions (Ca^{2+}) to a natural rubber latex to obtain the rubber latex having the specific coagulation property to calcium ions as described in new claim 1. Thus, Tanaka '567 cannot render obvious the instant invention because Tanaka '567 fails to disclose the elements of the instantly claimed invention. Withdrawal of the rejection is warranted and respectfully requested.

Tanaka '212 also cannot render *prima facie* obvious the instant invention. Tanaka '212 relates to a means for stabilizing a deproteinized natural rubber latex in which a surfactant is used as stabilizer. Tanaka '212 does not disclose or suggest use of two or more surfactants having different coagulation properties with respect to calcium ions to a natural

rubber latex as described in instant claim 1. Thus, Tanaka '212 cannot render obvious the instant invention because Tanaka '212 fails to disclose the elements of the instantly claimed invention. Withdrawal of the rejection is warranted and respectfully requested.

With the above remarks and amendments, Applicants believe that the claims, as they now stand, define patentable subject matter such that passage of the instant invention to allowance is warranted. A Notice to that effect is earnestly solicited.

If any questions remain regarding the above matters, please contact Applicant's representative, T. Benjamin Schroeder (Reg. No. 50,990), in the Washington metropolitan area at the phone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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